To: Scott Smith
From: Dr. Judith Zelikoff
Re: Bacteria identification

1. The Water hydrant Water Bug Grab (6.0 x 10^1 = 60 colonies) – nothing really of interest very low- B. megaterium
2. The Water Meter WaterBug Grab (3x10^1= 30 colonies) - nothing really of interest who high enough to be of concern (B. megaterium)
3. Shower WaterBug Grab (1.2x103 = 1,200 colonies) – higher - *B. species; Sphingomonas paucimobilis. See below for details.*
4. *Shower WaterBug 20 min exposure (2.8x102 = 280 colonies) – somewhat high; Sphingomonas paucimobilis and Candidia parapsilosis (yeast-uncommon in shower water)- see below for details.*

Sphingomonas paucimobilis: Gram-negative bacillus that creates a significant problem in clinical settings, being the most widespread cause of nosocomial infections. They are opportunistic pathogens that take advantage of underlying conditions and diseases. Sphingomonas paucimobilis, is regarded as of **minor clinical significance**. Infections, if they do occur include: bacteraemia/septicaemia caused by contaminated solutions, e.g. distilled water, haemodialysis fluid and sterile drug solutions; pseudobacteraemia have been recorded in association with S. paucimobilis, as have many cases of unusual infections both invasive and severe, e.g. septic arthritis and osteomyelitis. No cases of death have been recorded in the literature. **Comments: Potentially dangerous and serious in hospital settings and in immune compromised individuals.**

Candida parapsilosis*:* Candida parapsilosis is a fungal species of the yeast family that has become a significant cause of sepsis and of wound and tissue infections in immuno-compromised patients.
Candida species are presently the fourth leading cause of nosocomial bloodstream infection in the United States, being responsible for 8 to 15% of all such hospital-acquired infections. Over the past decade, the incidence of *Candida parapsilosis* has dramatically increased. In fact, reports indicate that *C. parapsilosis* is often the second most commonly isolated *Candida* species from blood cultures. Candida parapsilosis is an emerging major human pathogen that has dramatically increased in significance and prevalence over the past 2 decades, such that C. parapsilosis is now one of the leading causes of invasive candidal disease. Individuals at the highest risk for severe infection include neonates and patients in intensive care units. C. parapsilosis infections are especially associated with hyperalimentation solutions, prosthetic devices, and indwelling catheters, as well as the nosocomial spread of disease through the hands of health care workers. Factors involved in disease pathogenesis include the secretion of hydrolytic enzymes, adhesion to prosthetics, and biofilm formation. **Comment: Colony numbers are relatively high (not excessive), but should not be in shower water at all.**